Spruce Street Bridge
500 Block of East Spruce Street
Chippewa County, Sault Ste. Marie
Michigan

HAER NO. MI-5

HAER
MICH,
17-SAUMA,
2-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
MID-ATLANTIC REGION NATIONAL PARK SERVICE
DEPARTMENT OF THE INTERIOR
PHILADELPHIA, PENNSYLVANIA 19106

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HISTORIC AMERICAN ENGINEERING RECORD

SPRUCE STREET BRIDGE HAER No. MI-5

Location: 500 Block of East Spruce Street, between Johnstone and Tyson Streets, crossing the Edison Sault Power Canal, Sault Ste. Marie, Chippewa County, Michigan.

USGS Sault Ste. Marie South Quadrangle, 7.5 minute series, Universal Transverse Mercator Coordinates: 16.704380.5152200

Present Owner: City of Sault Ste. Marie, A Michigan Municipal Corporation,
325 Court Street
Sault Ste. Marie, Michigan 49783

Present Use: General transportation permitted under limited weight restrictions.

Significance: The bridge is typical of the eye-bar truss construction used extensively at the beginning of the twentieth century. This design provided a flat deck suspended from the camel-back arch. Both vertical and horizontal structural members were joined through use of the eye-bar pin connection.

PART I. HISTORICAL INFORMATION

A. Physical History

1. Period of Construction: Constructed between 1900 and 1902 as one of six identically designed bridges crossing the newly constructed Michigan Lake Superior Power Company Canal. (Upper Peninsula of Michigan, An Inventory of Historic Engineering and Industrial Sites, published by U.S. Department of Interior, 1978.)

2. Design Engineering: Pittsburg Testing Laboratory, Ltd., Chicago, Illinois, T.L. Condron, Resident Engineer, Contract No. 389. (Blueprints dated October 8, 1900, on file in records storage vault, City Clerk, City of Sault Ste. Marie, Michigan.)

3. Original and Subsequent Owners: The City of Sault Ste. Marie, Michigan has been the sole owner of this structure, as it is a part of the City street system.

4. Builder: New Castle Bridge Company, New Castle, Indiana, 1900. (Bridge Plaque attached to west portal superstructure.)

5. Original Plans and Construction: The original blueprints were prepared and presented on October 8, 1900 by the Pittsburg Testing Laboratory, Ltd., Chicago, Illinois, T.L. Condron, Resident Engineer. The approval is signed and dated October 17, 1900, J.A. Lawrie, City Engineer, Contract Number 389. (Blueprints on file in records storage vault, City Clerk, City of Sault Ste. Marie, Michigan.)

6. Alterations and Additions: There is no record or visual evidence of any alterations or additions to the bridge structure. The Street Department advises that periodic maintenance and repairs have been made to the bridge decking and sidewalks to insure public safety.

B. Historical Context

The Spruce Street Bridge crosses the man-made Edison Sault Electric Company Power Canal to physically connect the mainland with the island of downtown Sault Ste. Marie. The canal was dug in the last decade of the 19th century to create a hydroelectrical power generation facility using the water from Lake Superior, flowing through a twenty-one foot drop into the lower St. Mary's River for the power source. Spruce Street is a major east-west traffic route through the City. (Michigan Lake Superior Power Company, HAER MI-1, September, 1979.)

PART II. ARCHITECTURAL ENGINEERING INFORMATION

A. General Description

probably steel by 1902

The single-span bridge is constructed of iron components. Vertical and horizontal truss units are connected by means of an eye-bar which is typical of small bridge construction at the turn of the 19th century. The overhead arch from which the bridge deck is suspended consists of riveted box and I beams secured to solid abutments located on opposite banks of the canal. The through span for the roadway runs between the overhead trusses, while the walkways are cantilevered outside of the beam assembly. The arch is further stressed with angular, cross-sectional bridging members to provide rigidity to the structure. Periodic inspections have been conducted by contract engineering firms to determine the physical condition of the structure. Inspections conducted under the direction of the Michigan Department of State Highways and Transportation, in 1973 and 1978, indicated that the eye-bar truss units had rusted and deteriorated to the extent that the bridge could no longer be considered safe for public service use. In this same time period, the bridge weight limits were reduced from unlimited use to a loading limit of five tons. (Structural Inventory and Appraisal, MDSHT, October 25, 1978.)

B. Physical Description

Length - 284 lineal feet
Through Span - 278'10"
Deck Width - 22.3"
Curb to Curb Width - 22'3"
Sidewalk Width - 6'0" right, 5'3" left
Vertical Clearance Over Deck - 13'4"
Load Limit - Five Tons Gross
Approach Roadway Width - 32'0"
Year Completed - 1902
(Structural Inventory and Appraisal, MDSHT, October 25, 1978.)

Although no record exists, it appears that the structure has been painted a dark green, as determined by a visual observation of paint chips examined at the bridge.

C. Site

Spruce Street and the Spruce Street Bridge run easterly-westerly as a major cross-town route. This street is a designated public service route for police and fire protection and for school transportation. The terrain is relatively flat in the vicinity of the power canal as spoils from the canal excavation were used extensively for land fill. The land is gently sloped toward the canal on both banks to assure surface drainage. The area in all directions is zoned single and multi-family residential. Access to the power canal right-of-way is restricted by a secure, anti-intrusion fence erected on both banks. The bridge is used and maintained as a functional segment of Spruce Street and has not been affected by seasonal changes or climatological conditions.

PART III. SOURCES OF INFORMATION

A. Published Documents

Upper Peninsula of Michigan, An Inventory of Historic Engineering and Industrial Site; U.S. Department of Interior, 1978.

Michigan Lake Superior Power Company; HAER MI-1, September, 1979.

B. Reports

Structural Inventory and Appraisal, Spruce Street Bridge; Michigan Department of State Highways and Transportation, October 25, 1978.

C. Primary Unpublished Sources

Spruce Street and Johnstone Street Blueprints, consisting of eleven sheets, produced by Pittsburg Testing Laboratory, Ltd., Chicago, Illinois, T.L. Condron, Resident Engineer, Contract Number 389, dated October 8, 1900. Approved October 17, 1900 by J.A. Lawrie, City Engineer. Stored in the record storage vault, City Clerk, City of Sault Ste. Marie, Michigan, 49783. In the opinion of a local professional photographer, photocopies would not be legible. The City Engineer believed that drawings could be made of major components if essential.

Metal Bridge Plaque on west portal of the bridge reads, "Built by Newcastle Bridge Company, New Castle, Indiana, 1900". Plaque was photographed for inclusion in the historical record.

PART IV. PROJECT INFORMATION

Prepared by:

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Community Development Department
City of Sault Ste. Marie, Michigan
April, 1981.

Engineering Data by:

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